August 3, 2021

Phase I Wastewater System Improvements Project Update

Presented by:
Enprotec / Hibbs & Todd, Inc.

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Background

- Wastewater System Study
  - eHT contracted to perform study in October 2017
  - Included creation of wastewater collection system model and analysis/planning for capacity needs at WWTP

- Phase I Wastewater System Improvements
  - eHT contracted to begin design in June 2018
  - Includes the following project elements:
    - Rehab of Existing (South) WWTP to maintain 2 MGD advanced treatment
    - Construction of New (East) WWTP at 1 MGD advanced treatment
    - Collection system improvements in support of South and East WWTP Imp.

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Wastewater System Study

Two main takeaways from Wastewater System Study:

- Existing Collection System Issues
- Treatment Capacity needed to handle growth

Existing Collection System Issues

- Lift Station #7 and Downstream Collection System
  - Wet-well volume not adequate, causes backups upstream
  - Gravity system downstream not able to handle wet weather flow, surcharges during storm events
- Lift Station #23
  - Pumping capacity is under capacity for service area
  - Cannot increase pumping capacity without downstream improvements (LS #7 and Collection System)
  - Currently this is getting by because of an oversized wet-well that provides storage buffer in the system
- Main Lift Station
  - Nearing capacity limitation due to system growth

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Treatment Capacity

- Growth projections
  - Used City's 2016 Comprehensive Plan as a base line
  - 2.6% CAGR for 2017-2026 and 1.60% CAGR for future
- Capacity Analysis

Traditional Analysis	Growth Analysis
2038 – 2.6 MGD	2038 – 3.6 MGD
2048 – 3.0 MGD	2048 – 4.2 MGD

  - Traditional Analysis = current connections + growth projections
  - Growth Analysis = current connections + growth projections + approved developments
- Phase I Recommended Capacity – 3 MGD (2038)
  - Accelerated build-out of approved developments may trigger Phase II capacity expansion prior to 2038

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Project Alternatives

- Alternative 1
  - Upgrade and Expand Existing WWTP
- Alternative 2
  - Construct New North WWTP, Abandon Existing WWTP
- Alternative 3
  - Construct North WWTP and Split Flows between North and South
- Alternative 4
  - Construct North WWTP and convert South WWTP to Reuse Facility
- Alternative 5
  - Rehab South WWTP and Construct Satellite WWTP at Permanent Sites

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Alternative Cost Comparison

Alternative	Description	Estimated Costs, $		
		WWTP	Collection System	Total
1	Upgrade South Treatment Plant and Expand Capacity	29,826,000	7,570,000	37,396,000
2a	North Treatment Facility and Upgraded Lake Force Main	37,151,000	11,851,000	49,002,000
2b	North Treatment Facility and New Lake Force Main	37,151,000	8,851,000	46,002,000
3	North Treatment Facility and Upgraded South Plant	45,277,000	10,379,000	55,656,000
4	North Treatment Facility with South Reuse Facility	41,290,000	11,851,000	53,141,000
5a	Upgraded South Plant and Permanent East Satellite Plant	27,736,000	1,160,000	28,896,000
5b	Additional Permanent North Satellite Plant	9,525,000	2,330,000	11,855,000

Alternative 1 vs. Alternative 5

Alternative 1: South WWTP Expansion

- $8.5M Higher Cost for 3 MGD
- Expansion issue with existing/future discharge permit and neighbors (major amendment required)
- Extensive Collection System work
- Future growth impact
  - Will require additional WWTP expansion(s)
  - Will require new/upgraded lake crossings

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Alternative 1 vs. Alternative 5

Alternative 5: South WWTP Rehab, New Satellite WWTP

- $8.5M Lower Cost for 3 MGD
- Maintains existing South WWTP Discharge Permit (with minor amendment)
- Less Collection System Work
- Allows for elimination of existing lift station (LS #22)
- Ultimate plan will reduce dependency on lake crossings in the collection system

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Phase I Wastewater System Improvements

- Phase I Wastewater System Improvements
  - Rehab of Existing (South) WWTP to maintain 2 MGD
  - Construction of New (East) WWTP to 1 MGD (permit covers up to 2 MGD)
  - Collection system improvements in support of South and East WWTP improvements
- Project was presented at various Public Meetings
  - City Council
  - Capital Improvements Advisory Committee
  - Municipal Utilities Advisory Board
  - EID Public Hearing
  - Landowner Meeting (Non-Required Outreach Event)

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East WWTP Design Summary

- Membrane Bioreactor System (MBR) with Biological Nutrient Removal (BNR)
- Discharge (effluent) from the WWTP will be treated to meet the Type 1 reuse standard, which is safe for direct human contact (e.g. Type 1 reuse required for swimming)

East WWTP Design – Proactive Approach

- The following items are not required by TCEQ for design of the WWTP, but selected to minimize impact:
  - Odor Control
    - Systems designed to capture foul odor at odor causing processes/structures – headworks, EQ storage
    - The proposed method for odor control allows for capture and treatment of foul odors 24/7, 365 except for during maintenance or repair events
  - Noise Control
    - All pumps and blowers will be located inside buildings with sound attenuating enclosures
    - This will greatly reduce or eliminate noise outside of the site boundary
  - Exterior Lighting
    - Lighting will be supplied with motion sensors and timers to limit exterior lighting to operating at night only when necessary

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Current Status: TCEQ Discharge Permit

- TCEQ determined the application administratively complete on November 12, 2019
- TCEQ issued the draft permit on May 4, 2020
- TCEQ held a virtual Public Hearing on September 10, 2020
- TCEQ determined that the application meets the requirements of applicable law on June 3, 2021
- Awaiting date for TCEQ Public Hearing for Commissioner determination, with consideration of possible contested case hearing

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Moving Forward

- Need resolution to Discharge Permit Application
- TWDB Environmental Clearance pending Permit approval
  - Project funds (design/construction) cannot be released for East WWTP until Environmental approval
  - CMAR can proceed with bid packages upon Environmental approval
- Contractor to continue with South WWTP construction
  - Estimated substantial completion June 2022

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Questions // Discussion

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Meeting for Notification of Affected Landowners

- Held on November 14, 2019 to notify affected landowners of the City's plan for the East WWTP and TCEQ Discharge Permit application submittal
- This meeting is **not** required by TCEQ
- City chose to hold this non-required meeting as a proactive opportunity to communicate the project to Affected Landowners and address questions and concerns

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Affected Landowners

- TCEQ determines the list of Affected Landowners based on the nature of the discharge route from the proposed outfall
- During review of the permit application, TCEQ reduced the Affected Landowners list from what was originally submitted for review per TCEQ's requirements

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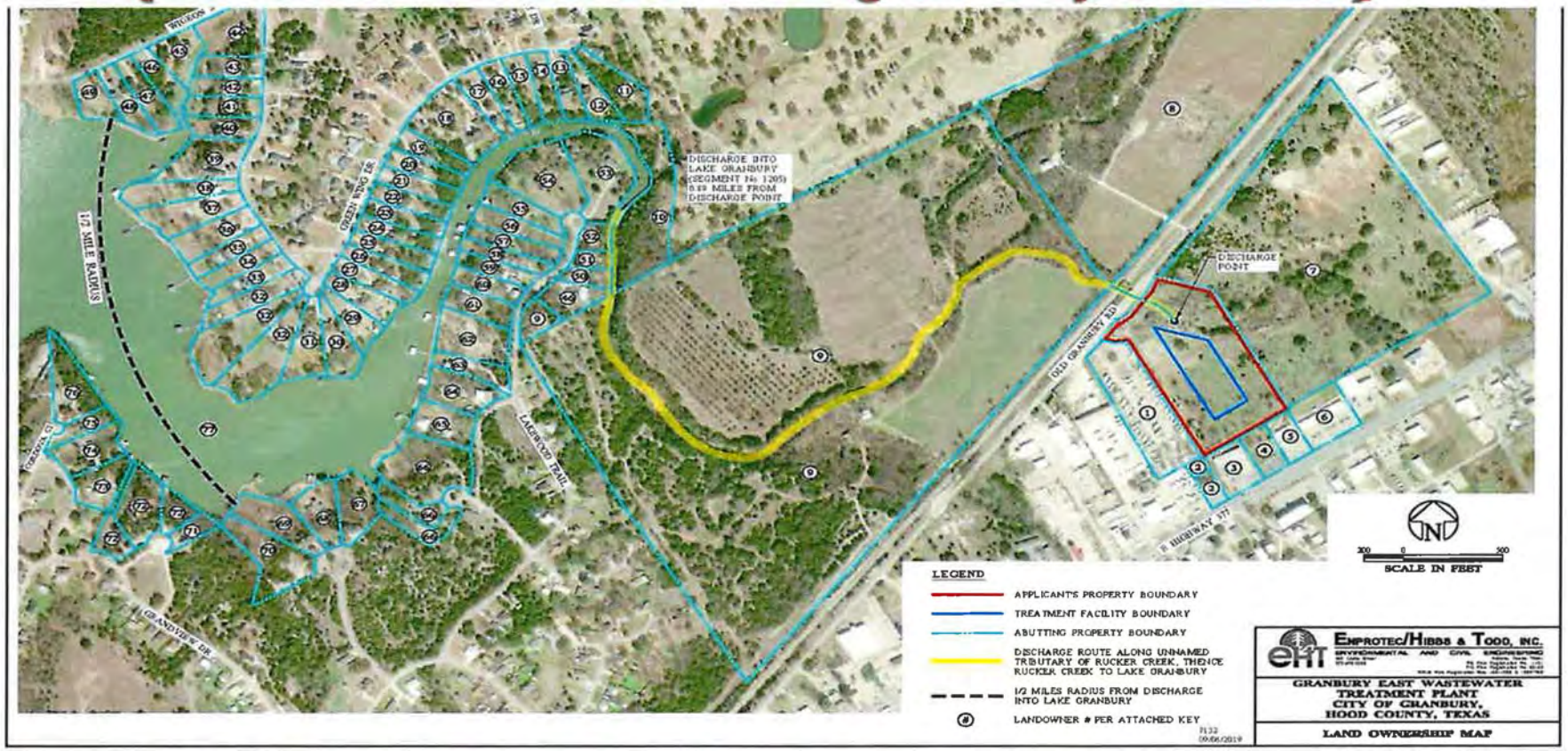
DRAFT Affected Landowners Map (as submitted to TCEQ in Sept. 2019)



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FINAL Affected Landowners Map (as determined by TCEQ – Oct. 2019)